No.



200000002

THIE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Holden's Youndation Seeds E.E.G.

DUCCES, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT. THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, A CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN UCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY THOUGHD, 7 U.S.C. 2921 ET SEQ.)

CORN, FIELD

'LH253'

In Vestimonn Therest, I have hereunto set my hand and caused the seal of the Plant Barrety Arotection Office to be affixed at the City of Washington, D.C. this thirtieth day of January, in the year two thousand two.

Attest:

Oal M. Juloul

Commissioner Plant Variety Protection Office Agricultural Marketing Service Secretai

AGRICULTURAL MARKETING SERVICE SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION APPLICATION FOR PLANT VARIETY PROTECTION CEI (Instructions and information collection burden statement o 1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) HOLDEN'S FOUNDATION SEEDS L.L.C.	RTIFICATE	Application is required in	order to det 1 (7 U.S.C. 24 (7 U.S.C. 242) ON OR 3.	rk Reduction Act (PRA) of ermine if a plant variety p 21). Information is held co 6).
(Instructions and information collection burden statement of NAME OF APPLICANT(S) (as it is to appear on the Certificate)		certificate is to be issued until certificate is issued 2. TEMPORARY DESIGNATION	1 (7 U.S.C. 24) (7 U.S.C. 242) ON OR 3.	21). Information is held co
(Instructions and information collection burden statement o NAME OF APPLICANT(S) (as it is to appear on the Cortificate)		until certificate is issued 2. TEMPORARY DESIGNATION	(7 U.S.C. 242) ON OR 3.	
. NAME OF APPLICANT(S) (as it is to appear on the Certificate)				
HOLDEN'S FOUNDATION SEEDS L.L.C.	•	EXPERIMENTAL NUMBER		VARIETY NAME
HOLDEN'S FOUNDATION SEEDS L.L.C.				
		Ex3729		LH253
		. •••		
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)		5. TELEPHONE (include area	codej	FOR OFFICIAL USE ON
503 S. MAPLEWOOD AVENUE		(319)668-1100	2'	0 0 0°00°0
PO BOX 839 WILLIAMSBURG, IA 52361				
William Botto, III 72301		6. FAX (include area code)	F I	DATE , 1
		(319)668-2453	I N G	18/4/99
7. GENUS AND SPECIES NAME 8. I	FAMILY NAME (Botal	nical)		FILING AND EXAMINATION FE
ZEA MAYS	GRAMINE	AE	F	· 2450°
2.000 / 1/10 / 1/10				DATE /
CODN ETTE D			R	10/4/99
CORN, FIELD	, ,		E	CERTIFICATION FEE:
 If the applicant named is not a "person", give form of organization is LIMITED LIABILITY COMPANY 	(corporation, partners	nip, associauon, a.c.) (Common)	ī	· # 320.
1. IF INCORPORATED, GIVE STATE OF INCORPORATION		12. DATE OF INCORPORATIO		DATE 1/2 2 /03
		DECEMBER 1,	1997	1/20/02
3. NAME AND ADDRESS OF APPLICANT REPRESENTATIVEISI, IF ANY, TO SERVE IN	THIS APPLICATION	AND RECEIVE ALL PAPERS	14.	TELEPHONE (include area code
MR. MARK ARMSTRONG				(319)668-1100
HOLDEN'S FOUNDATION SEEDS L.L.C.				
503 S. MAPLEWOOD AVENUE PO BOX 839			16.	FAX (include area code)
WILLIAMSBURG, IA 52361				(319)668-2453
6. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instruct	tions on reverse)			
a. 🔀 Exhibit A. Origin and Breeding History of the Variety				
b. 🔀 Exhibit B. Statement of Distinctness				
c. 🔀 Exhibit C. Objective Description of the Variety				
d. X Exhibit D. Additional Description of the Variety (Optional)				
e. 🔀 Exhibit E. Statement of the Basis of the Applicant's Ownership				
f. 🔀 Voucher Sample (2,500 viable untreated seeds or, for tuber propagated variety	eties verification that	tissue culture will be deposited ar	nd maintained in a	n approved public repository)
g. 🔀 Filing and Examination Fee (\$2,450), made payable to "Tressurer of the Unit	ted States" (Mail to P	VPC)		Marie Lands
7. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIE			(See Section 83)	I) of the Plant Variety Protection
YES (If "yes," answer items 18 and 19 below) B. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO	NO (If "no," go). IF "YES" TO ITEM 18, WHICH	I CI ASSES OF BE	IODUCTION REYOND BREEDER
GENERATIONS?	NUMBER OF			
YES NO			REGISTERED	CERTIFIED
D. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED	D, USED, OFFERED FO	OR SALE, OR MARKETED IN THE	E U.S. OR OTHER	COUNTRIES?
☐ YES (If "yes," give names of countries and dates) ▼ NO		÷.,		and the second second

Origin and Breeding History of the Inbred

Exhibit A

LH253 was developed from the single cross of LH211 x LH210 by selfing and using the pedigree system of pant breeding. Yield, stalk quality, root quality, disease tolerance, late plant greenness, late plant intactness, ear retention, pollen shedding ability, silking ability and corn borer tolerance were the criteria used to determine the rows from which ears were selected during the development of LH253.

LH210 and LH211 the progenitors of LH253, are both proprietary field corn inbred lines of Holden's Foundation Seeds, Inc., of Williamsburg, Iowa. In 1990, Holden's Foundation Seeds, Inc., applied for plant variety protection of LH210. On May 31, 1991, LH210 was awarded certificate #9000050. A utility patent from the United States Patent Office also protects LH210. The utility patent was issued on January 4, 1994, and is patent #5,276,262. In 1990, Holden's also applied for plant variety protection of LH211. On May 31, 1991, LH211 was awarded certificate #9100051. A utility patent from the United States Patent Office also protects LH211. The utility patent was issued on February 7, 1994, and is patent #5,387,743.

Also enclosed is a copy of a letter from the USDA Seed Branch confirming that no other field corn inbreds have been named, 'LH253'.

On the following pages are a summary and description of the development of LH253. Also included are copies of pages from Holden's Foundation Seeds, Inc. nursery books. The rows associated with the development of LH253 have been highlighted.

LH253 has shown uniformity and stability for all traits described in Exhibit C. It has been self-pollinated and ear-rowed a sufficient number of generations, with careful attention to uniformity of plant type to ensure homozygosity and phenotypic stability. The line has been increased both by hand (Indiana 1994; Iowa 1995 and 1997) and sibbed in an isolated production field (Iowa 1998) with continued observations for uniformity. Gary D. Arthur, the originating plant breeder, has observed LH253 all four generations it has been increased. The line is uniform, stable and no variant traits have been observed or are anticipated in LH253.

Origin and Breeding History of the Inbred LH253 = Ex3729 = LH211 x LH210

Field/Row	Pedigree	<u>Location</u>	<u>Year</u>
Hartz Mountain	LH253	Iowa	1998
18567 20471	Ex3729	Iowa	1997
27140-27149	Ex3729	Iowa	1995
8134	LH211 x LH210 @7	Indiana	1994
3588	LH211 x LH210 @6	Indiana	1993
5518	LH211 x LH210 @5	Indiana	1992
15569	LH211 x LH210 @4	Hawaii	1992
5738	LH211 x LH210 @3	Indiana	1991
6793	LH211 x LH210 @2	Indiana	1990
25369	LH211 x LH210 @1	Hawaii	1990
31509	LH211 x LH210 @0	Iowa	1989
32378 32366	LH211 LH210	Hawaii	1989

Novelty Statement

Exhibit B

LH253 is most similar to LH210, however, the most distinguishing difference is the glume color. The glume color of LH253 is green while the glume color of LH210 is green with a red bar at the base of the glume. When using the Munsell Color Charts for Plant Tissues as a reference, the glume color of LH253 would be classified as 5GY 5/6 while the glume color of LH210 would be classified as 5GY 6/6 with the color of the red bar classified as 5R 3/4.

The silk color of LH253 is light green (2.5GY 8/8) while the silk color of LH210 is red (5R 3/4).

A small amount of anthocyanin is present in the brace roots of LH253 causing them to be variegated purple and green in color. Anthocyanin is absent in the brace roots of LH210 and the brace roots are plain green in color.

LH253 has also shown a tendency to tiller. This characteristic is not common in either of its progenitors and is uncommon in non-stiff stalk inbreds.

EXHIBIT C (Corn: Maize)

United States Department of Agriculture. Agricultural Marketing Service Science Division. Plant Variety Protection Office National Agricultural Library Building. Room 500 Beltsville. MD 20705

200000002

OBJECTIVE DESCRIPTION OF VARIETY CORN (Zea mays L.)

Name of Applicant(s)	Variety Seed Sour	ce Variety Name or Tempo	rary Designation	
Holden's Foundation Seeds, LLC	Iowa 1997	LH253		
Address (Street & No., or R.F.D. No., City, State, Zip Code and Country) 503 South Maplewood Ave	FOR OFFICIAL USE			
PO Box 839 Williamsburg, IA 52361		PVPO Number		
Place the appropriate number that describes the varietal characters typic whole numbers by adding leading zeroes if necessary. Completeness should Traits designated by a '*' are considered necessary for an adequate variety	establish an adequate variety			
COLOR CHOICES (Use in conjunction with Munsell color code to describe all 01=Light Green 06=Pale Yellow 11=Pink 02=Medium Green 07=Yellow 12=Light Red 03=Dark Green 08=Yellow-Orange 13=Cherry Red 04=Very Dark Green 09=Salmon 14=Red 05=Green-Yellow 10=Pink-Orange 15=Red & White	16=Pale Purp 17=Purple 18=Colorless 19=White	le 21=Buff 22=Tan 23=Brown 24=Bronze	escribe)	
STANDARD INBRED CHOICES (Use the most similar (in background and maturity Yellow Dent Families: Yellow Dent Families: Yellow Dent Family Members Co109, I B14 CM105, A632, B64, B68 0h7, T2: B37 B37, B76, H84 W117, W1873 N192, A679, B73, NC268 W182BN C103 M017, Va102, Va35, A682 Oh43 A619, MS71, H99, Va26 White Dent WF9 W64A, A554, A654, Pa91 CI66, H2	comparisons based on grow-out Sweet Corn: Cl3, Iowa5125, Popcorn: SG1533, 4722. Pipecorn: Mo15W, Mo16W,	. P39. 2132 HP301. HP7211		
TYPE: (describe intermediate types in Comments section)	·		4 7	
* 2 1=Sweet 2=Dent 3=Flint 4=Flour 5=Pop 6=Ornamental 7=Pipecorn		Standard Inbred Name <u>Mo17</u>		
2. REGION WHERE DEVELOPED IN THE U.S.A.:		Standard Seed Source <u>Iowa State Univ</u> .		
* 5 1=Northwest 2=Northcentral 3=Northeast 4=Southeast 5=Southcentral 6=Southwest 7=Other		<u>5</u> _		
3. MATURITY (In Region Best Adaptability: show Heat Unit formula in "Common DAYS HEAT UNITS $ * $	k	DAYS HEAT UNITS 1 3 3 6 6 7 1 1 3 1 6	.5_	
			· <u> </u>	
(*) From 50% silk to optimum edible qualit	;y		· ·*	
	ıre		· <u> </u>	
4. PLANT: Standard Deviation	Sample Size	Standard Deviati	on Sample Size	
* $2 \ 4 \ 5 \ 8$ cm Plant Height (to tassel tip) 10.75	_50_	<u>2 1 9 4 6.83</u>	50	
* $\frac{1}{2}$ $\frac{0}{2}$ $\frac{8}{2}$ cm Ear Height (to base of top ear node) $\frac{7.28}{2}$	50	95.7 7.50		
$\underline{18.3}$ cm Length of Top Ear Internode $\underline{1.78}$	_50_	-13.3 1.16	<u>50</u>	
1.1 Average Number of Tillers	_50_	0_0	_50_	
* 1.0 Average Number of Ears per Stalk 0.0	_50_	1_00.0	_50_	
3 Anthocyanin of Brace Roots: 1=Absent 2=Faint 3=Moderate 4=Dark		1		
Application Variety Data Page	e 1	Standard Inbred Data	5	

* 8.7 cm Width of Ear Node Leaf52 50 9.291 _ 50	Application Variety Data	Page	2	Standard Inbr	ed Data	
* _ 7 7.7 cm Length of Ear Hode Lesf	5. LEAF:	Standard Deviation	Sample Size	2 0	andard Deviation	Sample Size
*	* <u>8.7</u> cm Width of Ear Node Leaf	52 _^ _	_50_	9.2	91	50
2. 1. degrees Leaf Angle (Resoure From 2nd leaf above ear at anthesis to stalk above leaf) * 0. 2. Leaf Color (Munsell codeSGY_4/4	* <u>Z Z.Z</u> cm Length of Ear Node Leaf	3.53	_50_	_ Z 2 3	_3.43_	_50
### O 2 Leaf Color (Hunsel] code	* $\underline{}$ 5 Number of leaves above top ear	46	_50_	_ 5	31	50
Z Leaf Sheeth Pubescence (Rate on scale from 1-mone to 9-like peach fuzz) 2 3 Marginal Waves (Rate on scale from 1-mone to 9-many) Z Longitudinal Creases (Rate on scale from 1-mone to 9-many) 3 3 3 3 3 3 3 3 3	2 1 degrees Leaf Angle (measure from 2nd leaf above ear a	$\frac{3.81}{\text{at anthesis to stalk abo}}$		_39	9.67	50
3 Marginal Neves (Rate on scale from 1=none to 9=many) 7 Long/tudinal Creases (Rate on scale from 1=none to 9=many) 8. TASSEL: * 6 Number of Primary Lateral Branches	* <u>O 2</u> Leaf Color (Munsell code <u>5GY</u>	4/4)	<u>O</u> 2 (Munsel	1 code	3/4)
The constitutinal Creases (Rate on scale from 1-mone to 9-many) 3	$\overline{2}$ Leaf Sheath Pubescence (Rate on so	cale from 1=none to 9=li	ke peach fuzz)	2		
Standard Deviation Sample Size Standard Devia	$\underline{3}$ Marginal Waves (Rate on scale from	1=none to 9=many)		4		
*	$\overline{2}$ Longitudinal Creases (Rate on scal	e from 1=none to 9=many)	3		
	6. TASSEL:	Standard Deviation	Sample Size	St	andard Deviation	Sample Size
* 4 5. 2 cm Tassel Length	*6 Number of Primary Lateral Branches	1.46	_50_	_ 7_	90	_50_
The file of the Collar to tassel tip) The Pollen Shed (Rate on scale from D-male sterile to 9-heavy shed) The Theory of Collar (Munsell code	$\underline{}$ $\underline{}$ $\underline{}$ Branch Angle from Central Spike	9.75	_50_	_42	9.27	_50_
7 Pollen Shed (Rate on scale from 0-male sterile to 9-heavy shed) 7		4.29	_50_	4.8.3	2.98	_50_
0 2 Glume Color (Munsell code 5GY 5/6)) 0 2 (Munsell code 5GY 5/6)) 1 Bar Glumes (Glume Bands): 1=Absent 2=Present 1 7a. EAR (Unhusked Data): 26 Olive Green 26 Olive Green 29 (Munsell code 5Y 7/4)) 0 1 (Munsell code 7.5YR 7/4)) 0 1 (Munsell code 5Y 7/4)) 0 1 (Munsell code 7.5YR 7/4)) 1 1 (Munsell code 7.5YR 7/4)) 1 1 (Munsell code 7.5YR 7/4)) 1 2 (Munsell code 7.5YR 7/4)) 1 2 (Munsell code 7.5YR 7/4)) 1 2 (Munsell code 7.5YR 7/4)) 1 3 (Munsell code 7.5YR 7/4)) 1 2 (Munsell code 7.5YR 7/4)) 1 3 (Munsell code 7.5YR 7/4)) 1 3 (Munsell code 7.5YR 7/4)) 1 3 (Munsel		sterile to 9=heavy shed)	Z		
1. Bar Glumes (Glume Bands): 1=Absent 2=Present 7a. EAR (Unhusked Data): * O 1 Silk Color (3 days after emergence) (Munsell code 2.5GY 8/8) O 1 Fresh Husk Color (25 days after 50% silking) (Munsell code 2.5GY) 7/6 2 1 Dry Husk Color (65 days after 50% silking) (Munsell code 7.5YR) 7/4 * 1 Position of Ear at Dry Husk Stage: 1=Upright 2=Horizontal 3=Pendent 5 Husk Tightness (Rate on scale from 1=very loose to 9=very tight) 2 Husk Extension (at harvest): 1=Short (ears exposed) 2=Hedium (<8 cm) 3=Long (8-10 cm beyond ear tip) 4=Very Long (>10 cm) 7b. EAR (Husked Ear Data): Standard Deviation Sample Size * 1 5 .2 cm Ear Length 1.17 50 2 0.1 1.31 50 * 4 0 .4 mm Ear Diameter at mid-point 1.60 50 3 7 .9 2.20 50 - 9 1 .9 gm Ear Weight 20.70 50 1 0 8.5 21.79 50 * 1 2 Number of Kernel Rows 1.16 50 1 1 1.01 50 2 Kernel Rows: 1=Indistinct 2=Distinct 1 Row Alignment: 1=Straight 2=Slightly Curved 3=Spiral 1 5.5 cm Shank Length 3.97 50 2 2 Application Variety Data Standard Inbred Data	1 7 Anther Color (Munsell code 5RP 5	/2)	O 7 (Munse)	1 code <u>2.5GY</u>	<u>8/6</u>)
7a. EAR (Unhusked Data): * O 1 Silk Color (3 days after emergence) (Munsell code 2.5GY 8/8) O 1 Fresh Husk Color (25 days after 50% silking) (Munsell code 2.5GY) 7/6 2 1 Dry Husk Color (65 days after 50% silking) (Munsell code 7.5YR) 7/4 * 1 Position of Ear at Dry Husk Stage: 1=Upright 2=Horizontal 3=Pendent 5 Husk Tightness (Rate on scale from 1=very loose to 9=very tight) 2 Husk Extension (at harvest): 1=Short (ears exposed) 2=Medium (<8 cm) 3=Long (8-10 cm beyond ear tip) 4=Very Long (>10 cm) 7b. EAR (Husked Ear Data): Standard Deviation Sample Size * 1 5 .2 cm Ear Length	O 2 Glume Color (Munsell code 5GY 5	/6)	<u>0</u> <u>2</u> (Munsel)	1 code <u>5GY 5/</u>	<u>6</u>)
* O 1 Silk Color (3 days after emergence) (Munsell code 2.5GY 8/8) O 1 Fresh Husk Color (25 days after 50% Silking) (Munsell code 2.5GY) 7/6 2 1 Dry Husk Color (65 days after 50% Silking) (Munsell code 7.5YR) 7/4 * 1 Position of Ear at Dry Husk Stage: 1=Upright 2=Horizontal 3=Pendent 5 Husk Tightness (Rate on scale from 1=very loose to 9=very tight) 2 Husk Extension (at harvest): 1=Short (ears exposed) 2=Medium (<8 cm) 3=Long (8-10 cm beyond ear tip) 4=Very Long (>10 cm) 7b. EAR (Husked Ear Data): Standard Deviation Sample Size * 1 5 2 cm Ear Length	$\underline{1}$ Bar Glumes (Glume Bands): 1=Absent 2=Pr	esent		1_		
*	7a. EAR (Unhusked Data):			1 - 0		`
1 Fresh Husk Color (25 days after 50% Silking) (Munsell code 2.3GY) //6 2 1 Dry Husk Color (65 days after 50% Silking) (Munsell code 7.5YR) 7/4 1 Position of Ear at Dry Husk Stage: 1=Upright 2=Horizontal 3=Pendent 5 Husk Tightness (Rate on scale from 1=very loose to 9=very tight) 2 Husk Extension (at harvest): 1=Short (ears exposed) 2=Medium (<8 cm) 3=Long (8-10 cm beyond ear tip) 4=Very Long (>10 cm) 2	* $\underline{0}$ 1 Silk Color (3 days after emergence) (Muns	ell code <u>2.5GY 8/8</u>	_)			
2 1 Dry Husk Color (65 days after 50% Silking) (Munsell code 7.5 YR) //4 1 Position of Ear at Dry Husk Stage: 1=Upright 2=Horizontal 3=Pendent 5 5 Husk Tightness (Rate on scale from 1=very loose to 9=very tight) 2 2 Husk Extension (at harvest): 1=Short (ears exposed) 2=Medium (<8 cm) 3=Long (8-10 cm beyond ear tip) 4=Very Long (>10 cm) 7b. EAR (Husked Ear Data):	$\underline{0}\ \underline{1}$ Fresh Husk Color (25 days after 50% silki	ng) (Munsell code 2.50	<u>Y</u>) 7/6	ł	*	
Position of Ear at Dry Husk Stage: 1=Upright 2=Horizontal 3=Pendent	$\underline{2}\ \underline{1}$ Dry Husk Color (65 days after 50% Silking) (Munsell code 7.5Y	R ₎ 7/4		code	<u>/4</u> _)
Husk Tightness (Rate on scale from 1=very loose to 9=very tight) 2 Husk Extension (at harvest): 1=Short (ears exposed) 2=Medium (<8 cm) 3=Long (8-10 cm beyond ear tip) 4=Very Long (>10 cm) 2 7b. EAR (Husked Ear Data):	* $\underline{1}$ Position of Ear at Dry Husk Stage: 1=Upri	ght 2=Horizontal 3=Pende	ent	1		
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7b. EAR (Husked Ear Data): Standard Deviation Sample Size Standard Deviation Sample Size * 1 5 2 cm Ear Length 1.17 50 2 0 1 1.31 50 * 4 0 4 mm Ear Diameter at mid-point 1.60 50 3 7 9 2.20 50 _ 9 1 9 gm Ear Weight 20.70 50 1 0 8 5 21.79 50 * 1 2 Number of Kernel Rows 1.16 50 1 1 2 1.01 50 2 Kernel Rows: 1=Indistinct 2=Distinct 2 1 1 1.01 50 1 Row Alignment: 1=Straight 2=Slightly Curved 3=Spiral 1 1 1 3.97 50 1 3.2 3.36 50 2 Ear Taper: 1=Slight 2=Average 3=Extreme 2 2 Standard Inbred Data Standard Inbred Data				<u> </u>		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	3=Long (8-10 cm beyond ea	r tip) 4=Very Long (>10	cm)			
* 4 0 .4 mm Ear Diameter at mid-point 1.60 50 3 7.9 2.20 50 9 1.9 gm Ear Weight 20.70 50 1 0 8.5 21.79 50 * 1 2 Number of Kernel Rows 1.16 50 1 1 1.01 50 2 Kernel Rows: 1=Indistinct 2=Distinct 2 2 1 1.01 50 1.00 1	7b. EAR (Husked Ear Data):	Standard Deviation	Sample Size	Sta	andard Deviation	Sample Size
9 1.9 gm Ear Weight 20.70 50 1 0 8.5 21.79 50 * 1 2 Number of Kernel Rows 1.16 50 1 1 1.01 50 2 Kernel Rows: 1=Indistinct 2=Distinct 2 2 1	* $\frac{1}{5}.2$ cm Ear Length	1.17	_50_	<u>20.1</u>	1.31	_50_
* 1 2 Number of Kernel Rows 1.16 50 1 1 1.01 50 2 Kernel Rows: 1=Indistinct 2=Distinct 2 2 1 <td>* $\frac{4}{0}$ $\frac{0}{4}$ mm Ear Diameter at mid-point</td> <td>1.60</td> <td>_50_</td> <td><u>3 7 9</u></td> <td>2.20</td> <td>_50</td>	* $\frac{4}{0}$ $\frac{0}{4}$ mm Ear Diameter at mid-point	1.60	_50_	<u>3 7 9</u>	2.20	_50
2 Kernel Rows: 1=Indistinct 2=Distinct 2 1 Row Alignment: 1=Straight 2=Slightly Curved 3=Spiral 1 1 5 5 cm Shank Length 3.97 50 1 3 2 3.36 50 2 Ear Taper: 1=Slight 2=Average 3=Extreme 2 Application Variety Data Standard Inbred Data	_ <u>9</u> <u>1</u> . <u>9</u> gm Ear Weight	20.70	_50_	1 0 8 .5	21.79	_50_
1 Row Alignment: 1=Straight 2=Slightly Curved 3=Spiral 1 1 5 5 cm Shank Length 3.97 50 1 3 2 3.36 50 2 Ear Taper: 1=Slight 2=Average 3=Extreme 2 Standard Inbred Data	* 1 2 Number of Kernel Rows	1.16	_50_	<u>1</u> <u>1</u>	1.01	_50_
1 Row Alignment: 1=Straight 2=Slightly Curved 3=Spiral 1 1 5 5 cm Shank Length 3.97 50 1 3 2 3.36 50 2 Ear Taper: 1=Slight 2=Average 3=Extreme 2 Standard Inbred Data	2 Kernel Rows: 1=Indistinct 2=Distinct			2		
1 5.5 cm Shank Length 3.97 50 1 3.2 3.36 50 2 Ear Taper: 1=Slight 2=Average 3=Extreme 2 Standard Inbred Data		Curved 3=Spiral				
2 Ear Taper: 1=Slight 2=Average 3=Extreme 2 Application Variety Data Standard Inbred Data			50		3.36	_50_
		eme			 	•
	Application Variety Data			Standard Inbre	ed Data	
		for color traits	·			

Application Variety Data	Page	3	Standard	Lapred Detanin	0 D 2°
8. KERNEL (Dried):	Standard Deviation	Sample Size	,	Standard Deviation	Sample Size
$1 \ 1.8$ mm Kernel Length	60	_50_	<u>1</u> <u>1</u> . <u>3</u>	60	_50_
-9.1 mm Kernel Width	.70	_50_	_ 9.5	.50	50
$\underline{5}.\underline{5}$ mm Kernel Thickness	50	50	_ 5 3	.50	50
80.2 % Round Kernels (Shape Grade)	2.56	15	77.7.4	2.87	<u> 15</u>
${1\over 2}$ Aleurone Color Pattern: 1=Homozygous 2=Se	gregating		1		
(*) $\frac{1}{9}$ Aleurone Color (Munsell code $\frac{2.5Y}{9}$	2)	1 9 (Mu	nsell code 2.5Y 8/2	2)
* $\frac{0}{8}$ Hard Endosperm Color (Munsell code $\frac{2.55}{8}$	7 6/8)	08 (Mu	nsell code 2.5Y 8/6	;
* <u>O</u> <u>3</u> Endosperm Type: 1=Sweet (sul) 2=Extra Sweet 4=High Amylose Starch 5=Waxy Starch 6=High 8=Super Sweet (se) 9=High Oil 10=Other_			03_		· <u></u>
$3\ 2.7$ gm Weight per 100 Kernels (unsized sample	.56	15	3 4 3	58	15
9. COB:	Standard Deviation	Sample Size		Standard Devaition	Sample Size
* $\frac{2}{9}$. $\frac{5}{5}$ mm Cob Diameter at mid-point	1.90	50	263	1.60	<u>50</u>
1 4 Cob Color (Munsell code 5R 4/4)	1_4_ (Mu	nsell code <u>10R 5/6</u>	5)
10. DISEASE RESISTANCE (Rate from 1 (most susceptible) leave blank if not tested: leave Race or Strain					
A. Leaf Blights. Wilts. and Local Infection Diseases			·		
Anthracnose Leaf Blight (Colletotrichum graminicola Common Rust (Puccinia sorghi) Common Smut (Ustilago maydis) 5 Eyespot (Kabatiella zeae) Goss's Wilt (Clavibacter michiganense spp. nebraska 7 Gray Leaf Spot (Cercospora zeae-maydis) 9 Helminthosporium Leaf Spot (Bipolaris zeicola) Race Northern Leaf Blight (Exserohilum turcicum) Race 6 Southern Leaf Blight (Bipolaris maydis) Race Southern Rust (Puccinia polysora) Stewart's Wilt (Erwinia stewartii) Other (Specify) B. Systemic Diseases Corn Lethal Necrosis (MCMV and MDMV) Head Smut (Sphacelotheca reiliana) Maize Chlorotic Dwarf Virus (MCDV) Maize Chlorotic Mottle Virus (MCDV) Maize Dwarf Mosaic Virus (MCMV) Strain	ense)		2 Race _ 8 Race _ 9 Race	3 2 0	
Sorghum Downy Mildew of Corn (Peronosclerospora son Other (Specify)	rghi)		· -		
C. Stalk Rots					
Anthracnose Stalk Rot (Colletotrichum graminicola) Diplodia Stalk Rot (Stenocarpella maydis) Fusarium Stalk Rot (Fusarium moniliforme) Gibberella Stalk Rot (Gibberella zeae) Other (Specify)			_ _ _ _		
D. Ear and Kernel Rots					_
Aspergillus Ear and Kernel Rot (Aspergillus flavus) Diplodia Ear Rot (Stenocarpella maydis) Fusarium Ear and Kernel Rot (Fusarium moniliforme) Gibberella Ear Rot (Gibberella zeae) Other (Specify))				
Application Variety Data			Standard	Inbred Data	
Note: Use chart on first page to choose color codes for	color traits.			•	7

Application Variety Data Page 4	Standard Inbred Data
11. INSECT RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant);	<u> </u>
leave blank if not tested):	20000000
Banks Grass Mite (<i>Oligonychus pratensis</i>) Standard Deviation Sample Size Corn Earworm (<i>Helicoverpa zea</i>) Leaf-Feeding	Standard Deviation Sample Size
Silk Feeding : mg larval wt.	_
Ear Damage	
Corn Leaf Aphid (Rhopalosiphum maidis) Corn Sap Beetle (Carpophilus dimidiatus)	\ - '
European Corn Borer (Ostrinia nubilalis)	_
1st Generation (Typically Whorl Leaf Feeding) 2nd Generation (Typically Leaf Sheath-Collar Feeding) Stalk Tunneling :	
Fall Armyworm (Spodoptera frugiperda)	
Leaf-Feeding Silk-Feeding:	_
Northern Rootworm (Diabrotica barberi)	
Southern Rootworm (<i>Diabrotica undecimpunctata</i>) Southwestern Corn Borer (<i>Diatraea grandiosella</i>)	-
Leaf Feeding Stalk Tunneling :	_
cm tunneled/plant	
Two-spotted Spider Mite (<i>Tetranychus urticae</i>)Western Rootworm (<i>Diabrotica virgifera virgifera</i>)	
Other (Specify)	
12. AGRONOMIC TRAITS:	
6 Stay Green (at 65 days after anthesis) (Rate on a scale from 1=worst to 9=excellent.)	5_
O_O % Dropped Ears (at 65 days after anthesis)	0.0
O_O_ % Pre-anthesis Brittle Snapping	0.0
O_0 % Pre-anthesis Root Lodging	
0.0 % Post-anthesis Root Lodging (at 65 days after anthesis)	_ 0.0_
Kg/ha Yield of Inbred Per Se (at 12-13% grain moisture)	
13. MOLECULAR MARKERS: (0=data unavailable: 1=data available but not supplied: 2=data suppl	ied)
<u>O</u> Isozymes <u>O</u> RFLP's <u>O</u> RAPD's	
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U.S. Department of Agriculture. 1936, 1937. Yearbook.	
COMMENTS (eg. state how heat units were calculated, standard inbred seed source, and/or whe	ere data was collected. Continue in Exhibit D):
GDD = Tmax + Tmin - 50°F	
$\frac{\text{Tmin} \geq 50^{\circ}\text{F}}{2}$	

Standard Seed Source: Iowa State University

X

Data Collected at Williamsburg, IA 1998

Additional Description of the Inbred

Exhibit D

LH253 is a medium late season field corn inbred that flowers similar to LH210. LH253 appears to be a good pollinator, but will not be suitable for use as a seed parent.

Hybrids made with LH253 have shown very high yield potential the past four years in our yield testing program. Large, robust plants with big ear size are characteristics of LH253 hybrids. Stalk strength and grain quality are average.

Notes From

Exhibit C: The main silk body of Mo17 is green, but as the silk hairs are exposed to sunlight they turn lighter and are more 'olive green' in color. Please change the verbal silk color of Mo17 from '9' (salmon) to '26' with the description being 'olive green'. On occasion, it is difficult for me to describe what I observe in the field and match it to a color chip in the book. I'm sometimes puzzled with what I observe and the resulting color match and this is one of those times.

After some thought and evaluation, I have concluded that the reason for the large standard deviations in my statistical analysis is poor experimental design. I neglected to take into account the effect the end plants in the row have in my analysis. One to sometimes four plants at the end of each row have a dramatic effect on the standard deviation of the individual plants being evaluated. My understanding of this effect on this statistical function and its contribution to variance components was poor. To correct this flaw in my analysis, I will not allow my technician to measure these end plants. I will also more closely monitor the growth and uniformity of the individual plants in the row being evaluated.

NEFRODOCE LOCALLY. INCIDUE IONN NUMBER AND DATE ON AN TEPRODUCTIONS.		PURM APPROVED - OMB NO. 0581-005
U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE	The following statements are made 1974 (5 U.S.C. 552a) and the Paper	e in accordance with the Privacy Act of erwork Reduction Act (PRA) of 1995 .
EXHIBIT E STATEMENT OF THE BASIS OF OWNERSHIP		o determine if a plant variety protection 2. 2421). Information is held confidentia 2426).
1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
HOLDEN'S FOUNDATION SEEDS L.L.C.	Ex3729	LH253
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)	5. TELEPHONE (include area code)	6. FAX (include area code)
503 S. MAPLEWOOD AVENUE	(210)669 1100	(319)668-2453
PO BOX 839	(319)668-1100 7. PVPO NUMBER 2 0 0	0 0 0 0 0 2
WILLIAMSBURG, IA 52361	7. PVPO NOMBER	4 4 4 A A A A
8. Does the applicant own all rights to the variety? Mark an "X" in appropriate	block. If no, please explain.	X YES NO
9. Is the applicant (individual or company) a U.S. national or U.S. based compar If no, give name of country	ny?	X YES NO
10. Is the applicant the original owner? X YES NO If no, please at	nswer the following:	
a. If original rights to variety were owned by individual(s), is (are)	the original owner(s) a U.S. nation	nal(s)?
YES NO If no, give name of country		
b. If original rights to variety were owned by a company, is the or	riginal owner(s) a U.S. based comp	pany?
YES NO If no, give name of country		
11. Additional explanation on ownership (If needed, use reverse for extra space,	<i>):</i>	
PLEASE NOTE:		· · · · · · · · · · · · · · · · · · ·
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If the rights to the variety are owned by the company which employed the ori	•	st be U.S. based, owned by

- nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
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